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PATENT

P. Keller
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:		
Applicant	:	Paul S. Prevey III
Serial No.	:	09/516,327
Examiner	:	To be assigned
Group	:	2855
Filed	:	March 1, 2000
Docket	:	LRI-004PAT
Title	:	METHOD FOR REDUCING TENSILE STRESS ZONES IN THE SURFACE OF A PART

Hon. Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

INFORMATION DISCLOSURE STATEMENT TRANSMITTAL

Pursuant to the applicant's duty of good faith and candor to the Patent Office under 37 C.F.R. 1.56, the Applicant submits herewith an Information Disclosure Statement, including Form PTO-1449. A copy of each reference is attached.

The Applicant hereby submits that the filing of this Information Disclosure Statement has been filed before the mailing of a First Office Action on the merits and should be considered by the Office (37 CFR 1.97(b)(3).

Respectfully submitted,

March 19, 2001

By: Mark F. Smith
Mark F. Smith (32,437)

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CERTIFICATE OF MAILING

I hereby certify that this Information Disclosure Statement and the documents referred to as enclosed therein are being deposited with the United States Postal Service on this date March 19, 2001, with sufficient postage as First Class Mail, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Mark F. Smith
(Person Mailing Paper)

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INFORMATION DISCLOSURE STATEMENT

Pursuant to the applicant's duty of good faith and candor to the Patent Office under 37 C.F.R. 1.56, the Examiner's attention is directed to the following references identified on the attached form PTO-1449. A copy of each reference is attached.

Reference AA, U.S. Patent No. 3,494,013 is of interest for its showing of a process and device for the cutting, machining, and burnishing of ball surfaces of workpieces. The burnishing tool comprises a roller to exert an area of pressure against the surface of the workpiece.

Reference AB, U.S. Patent No. 3,770,595 is of interest for its showing of a method of treatment of steel parts in order to increase their resistance to wear and abrasion. The method comprises essentially a mechanical operation of cold-deformation of a material effecting cold-working to a depth of about 1.5 mm to 3 mm and a complementary mechanical operation of cold-working at the surface.

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Reference AC, U.S. Patent No. 3,820,210 is of interest for showing a burnishing tool for a flat surface utilizing a burnishing head having a plurality of rollers mounted in a cage.

Reference AD, U.S. Patent No. 4,118,846 is of interest for its showing of a burnishing attachment having a non-rotary burnishing tool. The tool is urges toward the rotating workpiece to exert a force on the workpiece surface. The force may be automatically adjusted by a pneumatic or hydraulic cylinder.

Reference AE, U.S. Patent No. 4,132,098 is of interest for its showing of cold-rolling of large diameter gears.

Reference AG, U.S. Patent No. 4,509,351 is of interest for its showing of a spinning lathe, the force exerted by a wheel being constantly supervised by one or more force sensors which furnish an instantaneous force signal to a servo-loop which controls the movement of the wheel.

Reference AH, U.S. Patent No. 4,565,081 is of interest for its showing of a forming machine having a disk-like forming roller supported on an upper slide. The force exerted by the forming roller on the workpiece is controlled by a cylinder piston assembly having a piston rod which is coupled to the forming roller through a spring means.

Reference AI, U.S. Patent No. 4,821,388 is of interest for its showing of a method for processing a nut seat on a wheel. The strength of the nut seal is increased by roller burnishing. Work hardening results from the compression of the rollers and residual compression stress generated along the surface.

Reference AJ, U.S. Patent No. 4,947,668 is of interest for its showing of a rolling milling tool, which can be used for burnishing, having a roller supported in a hydrostatic bearing

Reference AK, U.S. Patent No. 5,099,558 is of interest for its showing of a burnishing tool having a rotating roller to effect a compacting cold working action on the surface of the workpiece.

Reference AL, U.S. Patent No. 5,329,684 is of interest for its disclosure of a method of burnishing using a disk connected to a moving tool to work harden the surface of the workpiece.

Reference AM, U.S. Patent No. 5,522,706 is of interest for its showing of laser shock peened disks with loaded and locking slots for turbomachinery. Turbomachinery rotor components have localized compressive residual stress zones imparted in the areas of stress risers by laser shock peening.

Reference AN, U.S. Patent No. 5,525,429 is of interest for its showing of laser shock peening surface enhancement for gas turbine engine high strength rotor alloy repair

Reference AO, U.S. Patent No. 5,666,841 is of interest for its showing of a method for work-hardening by rolling a component.

Reference AP, U.S. Patent No. 5,826,453 is by the same inventor and is of interest for its showing of a single-point burnishing process to provide deep compression with a minimal amount of cold working and surface hardening.

Reference AQ, Classification of Metal-Burnishing Methods and Tools, by Yu. G. Scneider, Machines and Tooling, Vol. XL, No. 1, pages 35 - 39 (1969), is of interest for its showing of various burnishing tools.

Reference AR, Statistical Analysis of the Effects of Ball Burnishing Parameters on Surface Hardness, by N.H. Loh, S.C. Tam and B. Miyazawa, Elsevier Sequola, (1988), is of interest for its showing of the benefits or residual compressive stress and work hardening in improving the fatigue strength of a workpiece. The Reference is also of interest for its showing that increased surface hardness due to work hardening is considered desirable.

Reference AS, WEAR, by M. Fattouh, M.H. Blaxir and S.M. Serage, Elsevier Sequoia, Vol. 127, pages 123 - 127 (1988) is of interest for its showing of the use of cold working to increase the hardness of the surface area to improve fatigue strength.

Reference AT, The Measurement of Subsurface Residual Stress and Cold Working Distributions in Nickel Base Alloys, by Paul S. Prevey, published in ASM Conference Proceedings (1987) is of interest for its showing of a method of determining the diffraction peak width accurately in residual stress measurement.

Reference AU, Tools for Roller Burnishing, Deep Rolling, Forming, published by Cogsdill Toll Products, Inc. (1996).

Representation as to the pertinency of the cited art has been made in good faith and is based upon present understanding of the claimed invention and the scope and content of the cited art. It is to be understood that the present submission of art is in no way intended to be a waiver of any arguments under the Rules of the U.S. Patent and Trademark Office and the statutes of the United States.

Paul S. Prevey III
LRI-004PAT

Respectfully submitted,

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